

WHAT IS CLAIMED IS:

1. A semiconductor module comprising:

a semiconductor laser element;

a holding member for fixedly holding the semiconductor laser element, the holding member having thermal conductivity;

a base member fixedly holding the holding member, the base member having thermal conductivity; and

a case for fixedly holding the base member;

wherein a laser beam emitted from the semiconductor laser element is guided to an optical system formed by optical components disposed in the case and is projected out of the semiconductor module, and

wherein, by fixing the holding member that fixedly holds the semiconductor laser element to the base member by means of a thermal type adhesive member having thermal conductivity, the semiconductor laser element is fixed at a predetermined optical position where optical adjustment with respect to the optical system has been carried out.

2. A semiconductor module according to claim 1, wherein the base member is fixedly held by the case in a state in which at least a part of the base member is exposed to the outside of the case.

3. A semiconductor module according to claim 2, wherein the base member has greater thermal conductivity than that of the

case.

4. A semiconductor module comprising: a plurality of semiconductor laser elements; a plurality of holding members for fixedly holding the plurality of semiconductor laser elements individually, the plurality of holding members having thermal conductivity; a plurality of base members for fixedly holding the plurality of holding members individually, the plurality of base members having thermal conductivity; and a case for fixedly holding the plurality of base members; wherein laser beams emitted from the plurality of semiconductor laser elements are guided to an optical system formed by optical components disposed in the case and is projected out of the semiconductor module, and by fixing the plurality of holding members that fixedly hold the plurality of semiconductor laser elements, respectively, to the plurality of base members, respectively, by means of a thermal type adhesive member having a thermal conductivity, the plurality of semiconductor laser elements are fixed at predetermined optical positions where optical adjustment with respect to the optical system has been carried out.

5. A semiconductor module according to claim 4, wherein the base member is fixedly held by the case in a state in which at least a part of the base member is exposed to the outside of the case.

6. A semiconductor module according to claim 5, wherein the base member has greater thermal conductivity than that of the case.

7. A mounting method of a semiconductor laser element of a semiconductor module for mounting the semiconductor laser element at an optical position where predetermined optical adjustment has been carried out with respect to an optical system formed by optical components disposed in a case of the semiconductor module, the mounting method comprising:

a first step of positioning the semiconductor laser element fixedly held by a holding member having a thermal conductivity at the optical position where the predetermined optical adjustment has been carried out with respect to the optical system formed by the optical components disposed in the case of the semiconductor module;

a second step of heating a base member that is fixedly held by the case and is thermally conductive; and

a third step of fixing the holding member that fixedly holds the semiconductor laser element to the heated base member by means of a thermal type adhesive member having a thermal conductivity;

wherein by fixing the holding member to the heated base member in a state in which the semiconductor laser element held by the holding member is disposed at the optical position determined by the positioning in the third step, an optical axis of the semiconductor laser element is adjusted and the holding member is fixedly mounted at the predetermined optical position

of the case with respect to the optical system.

8. A mounting method according to claim 7, wherein the base member is fixed to the case in a state in which at least a part of the base member is exposed to the outside of the case, and the heating of the base member in the second step is carried out such that the bare part of the base member is heated from outside.

9. A mounting method according to claim 8, wherein the base member having a thermal conductivity is greater than that of the case is used in the third step.

10. A mounting method of semiconductor laser elements of a semiconductor module for mounting the plurality of semiconductor laser elements at optical positions where predetermined optical adjustment has been carried out with respect to an optical system formed by optical components disposed in a case of the semiconductor module, the mounting method comprising:

a first step of positioning one of the plurality of semiconductor laser elements fixedly held by a holding member having a thermal conductivity at one of the optical positions where the predetermined optical adjustment has been carried out with respect to the optical system formed by the optical components disposed in the case of the semiconductor module;

a second step of heating a base member that is fixedly held by the case and is thermally conductive; and

a third step of fixing the holding member that fixedly holds

the one of the plurality of semiconductor laser elements to the heated base member by means of a thermal type adhesive member having a thermal conductivity;

wherein by fixing the holding member to the heated base member in a state in which the one of the plurality of semiconductor laser elements held by the holding member is disposed at one of the optical positions determined by the positioning in the third step, an optical axis of one of the plurality of semiconductor laser elements is adjusted and the holding member is fixedly mounted at the predetermined optical position of the case with respect to the optical system, and by sequentially and repeatedly performing the first, second, and third steps for the plurality of semiconductor laser elements, the plurality of semiconductor laser elements are mounted at optical positions, respectively, where predetermined optical adjustment has been carried out.

11. A mounting method according to claim 10, wherein the base member is fixed to the case in a state in which at least a part of the base member is exposed to the outside of the case, and the heating of the base member in the second step is carried out such that the bare part of the base member is heated from outside.

12. A mounting method according to claim 11, wherein the base member having a thermal conductivity is greater than that of the case is used in the third step.

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